

## Chapter 1



Bill Thompson

*Monarch butterfly*

# The Purpose of, and Need for, Action

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- Relationship to Service Policies and Landscape-level Conservation Goals
- Status of Shrubland-Dependent Wildlife
- Threats to Resources
- Purpose of this Proposal



## Introduction

Shrublands and young forest habitats in the Northeast have declined dramatically over the past century, primarily as a result of the decline of agricultural land use, forest maturation, development pressures, and wetland draining and filling. As a result, many shrubland-dependent wildlife species have declined and have therefore been identified as high priorities for conservation in the Northeastern United States. The intent of this final Land Protection Plan/Environmental Assessment (final LPP/EA) for the establishment of Great Thicket National Wildlife Refuge (NWR, the refuge) is to help reverse this disturbing trend of shrubland habitat and species loss in strategic locations across the Northeast landscape and to restore the mosaic of habitats that wildlife need.

Shrubland and young forest habitat, also known as “early successional” habitat, are frequently described as thickets (Litvaitis 2001). Throughout this document we use several terms when referring to this habitat, including “shrublands,” “shrublands and young forest,” “early successional,” and “thicket.” This habitat is generally characterized as dense, primarily deciduous understory cover created when trees and other woody vegetation are growing back following disturbances caused by factors such as logging, fire, flooding, mortality from disease or insects, and high winds. Historically, the presence of these habitats was related to the frequency and distribution of these natural disturbances across the landscape, with certain areas such as coastal zones and sand plains much more prone to frequent or extreme storms or fires and, therefore, characterized by greater amounts of these habitats. However, human populations and the accompanying housing, agricultural, and industrial development have been most concentrated in coastal zones and river valleys, resulting in severe losses of the early successional habitats in much of the region (USFWS 2009a). Because of this habitat loss and forest maturation across the region, along with now limited natural disturbance, most wildlife and plant populations restricted to these habitats are in serious decline. These species are increasingly reliant upon managed areas such as relatively small protected barrens, power line rights-of-way, or recent timber harvests.

Numerous conservation tools are currently being applied on the landscape by state, Federal, and non-governmental partners in a six-state shrublands restoration and protection effort within the Northeastern United States. This effort includes restoration on existing state and Federal secured lands, assistance by numerous agencies and organizations to restore shrublands on private lands, and shrubland management on existing National Wildlife Refuge System (NWRS, Refuge System) lands. If approved by the Director of the U.S. Fish and Wildlife Service (USFWS, Service, we, us, our), this final LPP/EA would allow an expanded Refuge System contribution to this effort by allowing us to secure lands or easements in key locations.

Over the past year, we have collaborated with six states (Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York), the New England Cottontail (NEC) Executive and Technical committees, state NEC/shrubland land management teams, state and Service migratory bird biologists, and other partners to develop this final LPP/EA.

## Relationship to Service Policies and Landscape-Level Conservation Goals

This final LPP/EA represents the application and implementation of multiple Service directives, policies, and planning guidance. The concept of Strategic Habitat Conservation (SHC) has been adopted by the Service to guide us to work strategically with partners to conserve landscapes capable of supporting self-sustaining populations of fish and wildlife, and to address conservation challenges that cross jurisdictional boundaries. In addition, the Refuge System has adopted an approach in which refuge land protection proposals result from participation in Landscape Conservation Design (LCD) efforts, developed by the

## Strategic Habitat Conservation

greater conservation community, and facilitated through multi-partner regional landscape conservation cooperatives. LCD efforts are consistent with SHC and involve the development of a partnership-driven conservation strategy.

The Service has adopted SHC as a science-based approach for determining where and how to deliver conservation efficiently to achieve specific biological outcomes, in collaboration with partners, the public, and landowners. It requires us to set specific biological goals, allows us to make strategic decisions about our work, and encourages us to constantly reassess and improve our actions. The SHC approach integrates:

- *Biological planning*—development of a comprehensive landscape vision with partners, including identifying common goals, objectives, and surrogate species.
- *Conservation design*—development of a spatially explicit design needed to meet population objectives, and identification of management objectives.
- *Conservation delivery*—cost/benefit evaluation, selection, and implementation of best actions to meet objectives.
- *Monitoring*—to evaluate delivery, progress, success, and adapt as necessary.

This final LPP/EA is a result of several years of biological planning and conservation design accomplished through a multi-state partnership effort, involving close collaboration with all six state wildlife agencies and additional agencies and organizations. All six states have identified shrublands and young forest habitat as high priorities for conservation attention in their respective State Wildlife Action Plans (SWAPs), along with Species of Greatest Conservation Need (SGCN) dependent upon them. There is a high degree of land conservation commitment by all the entities involved, such as the dedication of competitive state wildlife grant and Pittman-Robertson funding for restoration and acquisition, the Natural Resources Conservation Service's (NRCS) Working Lands for Wildlife activities, and the Service's Partners for Fish and Wildlife Program which works with private landowners within the project area. Limited Refuge System acquisition is proposed as one additional tool, part of the regional cooperative effort to create and conserve early successional habitat with suitable landscape connectivity for the species that depend on this resource.

## Landscape Conservation Design using Surrogate Species

The Service is facilitating a coordinated network of Landscape Conservation Cooperatives (LCCs) across the United States, with the assistance of partners. The science provided by these partnerships is expected to inform biological planning and strategic conservation design, and help direct research and monitoring necessary to inform decisions about conservation delivery. The proposed Great Thicket NWR is located within the North Atlantic LCC (NALCC), which extends from Maine to Virginia. Early successional/shrubland/young forest habitat is listed as a NALCC priority habitat due to its importance in supporting populations of several designated NALCC highest priority species (USFWS 2009b).

The SHC approach recommends the use of a subset of priority trust species, or surrogates, to represent larger suites of priority species, as a tool for strategically conserving habitat at landscape scales. The NALCC has developed a list of surrogates for the major habitat types within the Northeastern United States to help focus biological planning and conservation design work. Conservation actions implemented for these species are intended to benefit associated priority species within a given habitat type. The NALCC further

sponsored the development of habitat capability models for selected surrogates, led by the University of Massachusetts, to enhance the capacity of partners to design sustainable landscape conservation in the Northeast. These models are being used across the NALCC area to:

- Predict capability of current landscapes to support populations of surrogates.
- Predict impacts of landscape-level changes on capability of habitats to support surrogates.
- Target conservation programs to efficiently achieve habitat objectives and evaluate progress.
- Enhance coordination among partners to make conservation design more effective.

Several surrogate species, including the NEC (*Sylvilagus transitionalis*) (cottontail, rabbit), prairie warbler (*Dendroica discolor*), blue-winged warbler (*Vermivora pinus*) chestnut-sided warbler (*Setophaga pensylvanica*), field sparrow (*Spizella pusilla*), American woodcock (*Scolopax minor*), brown thrasher (*Toxostoma rufum*), eastern towhee (*Pipilo erythrophthalmus*), and bog turtle (*Clemmys muhlenbergii*), have been identified to represent the entire suite of declining shrubland wildlife. Modeling and spatial analysis related to several of these species has been used to guide the design and development of this proposal.



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Eastern towhee

Habitat relationship models were developed for surrogates representing a range of habitats, including several early successional species such as the woodcock, prairie warbler, and ruffed grouse (*Bonasa umbellus*). An additional radar study, sponsored by our NWRS Division of Natural Resources with recent support from the NALCC, the Migratory Bird Program, and several states, is helping to identify stopover sites in the Northeastern United States important for sustaining migratory landbird populations (Buler and Dawson 2012, 2014). Conservation efforts are increasingly focused on identifying these critical areas needed by migrants to rest and replenish energy reserves. This project is building upon prior work by the University of Delaware and U.S. Geological Survey (USGS) to use weather surveillance data and field surveys to map and predict important migratory bird stopover sites. These were used in conjunction with NEC model outputs to inform the development of areas of acquisition for the proposed Great Thicket NWR.

### Strategic Growth of the National Wildlife Refuge System

The Service's recently adopted Strategic Growth policy directs that growth of the Refuge System must focus on acquiring interests in lands and waters that support the following:

- *Recovery of threatened and endangered species*, where land acquisition is prescribed in threatened or endangered species recovery plans or subsequent revisions.
- *Implementing the North American Waterfowl Management Plan*, where acquisition will contribute toward achieving the waterfowl population objectives identified in this plan and associated joint venture step-down management plans.
- *Conserving migratory birds of conservation concern*, where acquisition is identified as contributing toward achieving population objectives in plans such as the Partners in Flight (PIF) North American Landbird Conservation Plan and associated step-down plans.



*Early  
successional  
forest habitat*



Kelly Boland/USFWS

This final LPP/EA is intended as a Service contribution to help stem the decline of an entire suite of species, help accomplish recovery plan goals for federally listed endangered and threatened species, and contribute to goals for numerous declining priority migratory landbirds. The proposal will also allow us to contribute to accomplishing goals for the recovery of the NEC, as identified in the Conservation Strategy for the New England Cottontail (Fuller and Tur 2012) (NEC Conservation Strategy, the strategy). In execution of their charge to initiate priority-setting under the Region 5 State Wildlife Grant (SWG) Regional Conservation Needs Program, the Northeast Fish and Wildlife Diversity Technical Committee in 2007 named the NEC as the top priority SGCN for landscape conservation, and concurrently initiated a cooperative effort to secure competitive SWG funding for a multi-state conservation effort, in the hope of averting a listing action by the Service under authority of the Endangered Species Act (ESA).

Several areas of acquisition for the proposed Great Thicket NWR represent the intersection of high priority NEC sites and populations of currently listed species, most notably the bog turtle and the Massachusetts population of the northern red-bellied cooter (*Pseudemys rubriventris*) (cooter). The bog turtle recovery plan specifies acquisition of additional habitat in its Hudson/Housatonic recovery unit, which overlaps our southeastern New York/western Connecticut focus area. Management for shrubland species and the bog turtle can be targeted to benefit both. Similar benefits can be provided in southeastern Massachusetts for the cooter, where important cooter habitat has been designated and where the cooter recovery plan specifies additional acquisition of pond-shore habitats and corridors for genetic interchange (USFWS 2007a).

The proposed Great Thicket NWR is also designed to contribute to goals for numerous declining priority landbirds identified in the New England/Mid-Atlantic Bird Conservation Region Plan 30 (BCR 30). For example, we estimate that we will be able to contribute up to 5.4 percent of the BCR 30 population goal

for the blue-winged warbler and 6.8 percent for the prairie warbler, both BCR highest-priority species, on a relatively small number of acres compared to the total amount of BCR acres (PIF 2013, 2015). Map 1 shows the general vicinity of the proposed refuge acquisition areas in relation to the entire BCR 30. The BCR supports an estimated 10 percent of the blue-winged warbler total breeding population, and it has the highest breeding density of all BCRs as recorded by the Breeding Bird Survey, indicating high value of creating additional habitat in this region in terms of expected bird response (PIF 2013, 2015). Shrubland habitat within the project area also plays a crucial role in providing migratory stopover habitat for landbirds. An analysis of weather radar data has identified the southern New England coastal area as one of three areas in the Northeastern United States that supports the highest density of fall migrating birds (Buler and Dawson 2012, 2014).

### Other Plans

All of the refuges within the project area have identified goals and objectives for shrubland and young forest restoration and management in their 15-year management plans, known as Comprehensive Conservation Plans (CCPs). These generally include the maintenance of maritime shrubland and forest, pitch pine-scrub oak communities, shrub-dominated wetlands, and successional shrublands and young forest stages, for the purpose of providing nesting and migratory stopover habitat for landbirds of conservation concern, to benefit the NEC, and also breeding and migratory bats. The cottontail is also the subject of a Service Northeast Region Spotlight Species Action Plan and two state Candidate Conservation Agreements with Assurances.

### Status of Shrubland-Dependent Wildlife

As shrubland and young forest habitats have been declining throughout the Northeastern United States for decades, the wildlife species associated with them have experienced a similar reduction in population levels. For instance, 12 of 16 shrubland birds have declining population trends in the region. Many are listed as threatened or endangered by several Northeastern states. Additionally, American woodcock have declined by 40 percent over the past 30 years, and the native NEC occurs in only 20 percent of the area in which this species was historically found.

#### *Field sparrow*

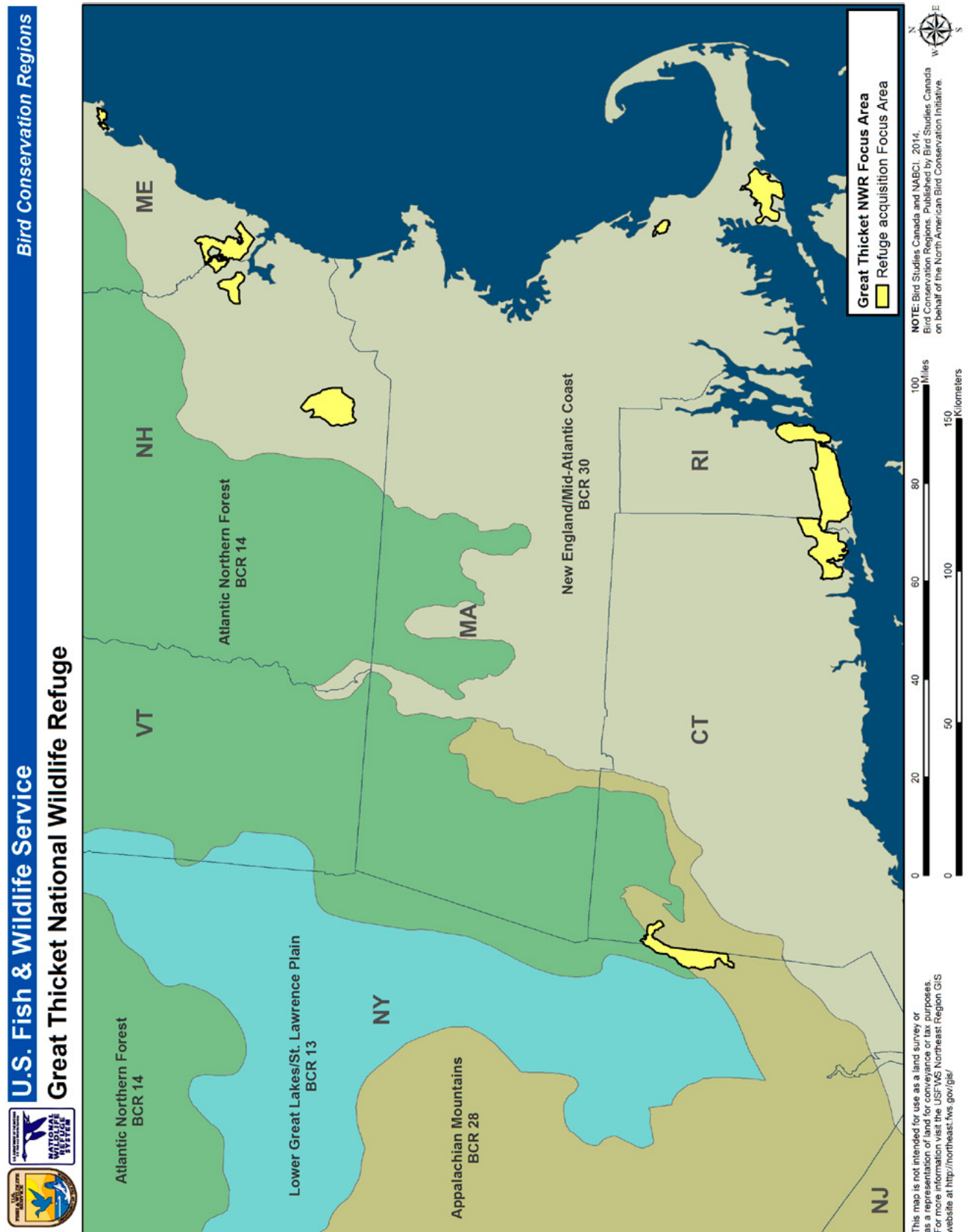


James Junda 2013

Although the NEC is the most well-known shrubland-dependent species, numerous other species utilize these important early successional habitats, including 136 species of butterflies, moths, birds, reptiles, other mammals, amphibians, and beetles, all of which have been identified by states in the Northeast as species that are in need of protection. Additionally, several shrub-dependent bird species, such as the American woodcock and golden-winged warbler (*Vermivora chrysoptera*) have declined significantly in the Northeast from lack of habitat availability and have been identified by Atlantic Coast Joint Venture (ACJV) plans as priority species of concern. Thus, landscape-level conservation for the NEC, the most dispersal-limited surrogate species, will provide significant habitat creation and improved connectivity for an entire suite of species, many of which are also current NALCC surrogate species for shrubland habitats in the region. These include the blue-winged warbler, prairie warbler, chestnut-sided warbler, field sparrow, and eastern hognose snake (*Heterodon platirhinos*). Species such as blue-winged warbler rank high in regional concern, and the woodcock is a species of regional and global concern.



Map 1: Bird Conservation Regions





## New England Cottontail

A regional inventory to evaluate the current distribution of the NEC determined that its range has declined by 86 percent since 1960, and recent studies confirm that it now only persists in highly disjunct populations that are both geographically and genetically isolated. Due to concern over its status, the rabbit was classified as a candidate for ESA protection beginning in 2006. Recognizing both the urgency and the opportunity to conserve the species, in 2008, state and Federal biologists began a coordinated conservation effort that has fueled the species' path toward recovery. That effort includes the development of a 2012 peer-reviewed NEC Conservation Strategy, as mentioned earlier in this document. Among other things, the strategy describes the process used to develop a conservation design that includes those landscapes, hereafter referred to as NEC Focus Areas, where conservation actions will be taken to achieve a series of explicit conservation goals by addressing threats to the species. These and other ongoing conservation efforts by a wide range of deeply committed partners, including state and Federal agencies, towns, land trusts, companies, and private landowners, contributed to the Service's decision in September 2015 that the NEC does not need Federal protection under the ESA (USFWS 2015a).

Great strides have been made in implementing the NEC Conservation Strategy. According to the 2014 Annual Performance Report for tracking NEC conservation progress, there are six NEC Focus Areas that currently contain an estimated 1,000 or more individual cottontails and five more NEC Focus Areas with estimated populations of 500 or more cottontails. Assessment of conservation actions planned in each NEC Focus Area indicates that an additional 17 NEC Focus Areas are expected to attain target population levels exceeding 500 individuals each by the end of the 2030 planning period (Fuller and Tur 2015).

Still, the Service and its partners recognize they must continue to implement the goals in the strategy to ensure future healthy NEC populations over the long term. The NEC is the one early successional species to date where remaining populations have declined to the point of needing critical conservation attention in many portions of its range. It requires habitat patches of extremely dense woody vegetation for escape cover, especially in winter. This stem density is only achievable in shrubland habitats. Relative to other species that require this thicket habitat, the NEC appears to be particularly vulnerable. This may be attributed to its specialized habitat needs for dense shrubs and large habitat patches, its year-round occupancy of shrublands, and its relatively limited dispersal ability.

To this end, the NEC has been identified as a SGCN by all states throughout its historic range, except Vermont. In addition, the Service, along with the state wildlife agencies, the Wildlife Management Institute (WMI), and the NRCS, formalized an agreement to develop a collaborative conservation strategy (i.e., the NEC Conservation Strategy) to promote the recovery, restoration, and conservation of the NEC and its associated habitats. The purpose was to ensure the development and implementation of a cooperative and well-coordinated conservation effort to address the population status of the NEC. The NEC Conservation Strategy was developed to describe a full complement of tasks needed to reduce threats facing the NEC, including assessing, setting, and prioritizing management actions, to generate a positive population response and status improvement. The NEC Technical Committee was formed and charged with developing, implementing, and evaluating a conservation plan that utilizes the principles of adaptive management, by establishing goals and objectives, recognizing and addressing key assumptions, identifying important conservation landscapes, and developing key partnerships. As a result, the NEC Conservation Strategy has provided agency decision leaders with an explicit description of an effective approach for conserving the species. In turn, agency leaders have guided the development of the strategy while addressing relevant issues to ensure that the strategy is well-implemented.

## **Migratory Birds**

The suite of birds associated with naturally occurring shrublands and early successional forests in the Northeastern United States accounts for about 15 percent of the total species diversity of breeding birds for the region (Dettmers 2003). The shrubland suite of birds contributes a relatively large number of individuals but a relatively small proportion of the total bird species to the avian diversity of the region. The primary risks to persistence of this suite of birds in the Northeast region include long-term declines in amounts of early successional forest and naturally occurring shrubland habitats. Many shrubland birds also have relatively high proportions of their total breeding populations occurring in the region, indicating the importance of the Northeastern United States to maintaining source populations of these species.

Partners in Flight (PIF), a cooperative bird conservation organization seeking to maintain populations of North American landbirds, has developed bird conservation plans for 12 physiographic areas in the Northeastern United States. In 10 of these 12 physiographic areas, the shrubland suite of birds is considered either a high or moderate priority for conservation action. The PIF plans indicate that the suite of shrubland birds should receive a high level of conservation attention within the Northeastern United States. Using the concept of historic range of variation, managing 10 to 15 percent of the landscape for early successional habitat might provide adequate habitat for maintaining minimal populations of shrubland birds in the region, but a greater percentage will be needed if population increases are desired (Dettmers 2003).

In addition to local remaining breeding-bird habitats, the Northeast region contains numerous critical stopover sites for landbirds and shorebirds. Although the total value of these sites has not been fully assessed yet, very large numbers of birds pass through during the spring and fall migration periods. Many may face the greatest mortality risks of their lives, particularly in fall, and their need to refuel to complete long-distance migrations could be a limiting factor for their survival and population growth.

An analysis of radar data from the National Weather Service (Buler and Dawson 2012, and 2014) has indicated that the Southern New England coastal area supports high densities of migrating birds during the fall migration. The area's shrubland habitats are known to be important not just for shrubland breeding species but also for forest interior species during migration, and to post-breeding individuals and young of the year in preparation for migration.

## **Monarch Butterfly and Pollinator Conservation**

The Service has recently begun working with partners as part of the Monarch Joint Venture (MJV), under the North American Monarch Conservation Plan (Commission on Environmental Cooperation 2008), to initiate monarch butterfly (*Danaus plexippus*) conservation programs, including on national wildlife refuges. The plan provides a framework for monarch breeding and overwintering habitat management and restoration. The MJV is a partnership of Federal and state agencies, non-governmental agencies, and academic programs working together to protect the butterfly and its migration. On public and private lands, MJV partners are working with various landowners and managers to restore monarch breeding and overwintering habitats, including the important milkweed and nectar-producing plant resources needed in the Northeastern United States.

Through a Joint Memorandum Regarding Collaborative Efforts to Conserve the Monarch Butterfly and Other Native Pollinators, the Service and the Association of Fish and Wildlife Agencies (AFWA) have joined in a common effort to take actions on behalf of monarch butterflies and other pollinators, and consider adding these as a SGCN in SWAPs.

Restoring milkweed habitat is the most important monarch conservation and management need (Jepsen et al. 2015, Commission for Environmental Cooperation 2008, Butler 2014), and the core of any such effort would be planting

milkweed and other nectar-producing plants in places suitable for monarchs and other pollinators. Such management is compatible with early successional/shrubland rotational management.

## Threats to Resources

Early successional habitat in New England has declined in the past century as a direct consequence of land use change. The once agrarian and pastoral landscape of New England has, over time, largely yielded to woodlands. Mature forests now dominate the land cover of the Northeastern United States, while shrublands have become exceptionally rare. The amount of shrubland and young forest habitat in much of the Northeast has fluctuated widely over time, and before European settlement early successional habitats are thought to have represented less than 10 percent of land area (Litvaitis 2006, Covell 2006). Their presence was related to the frequency and distribution of natural disturbances across the landscape, with certain areas such as coastal zones and sand plains more prone to frequent or extreme storms or fires and, therefore, containing greater amounts. However, human populations and the accompanying housing, agricultural, and industrial development have been most concentrated in coastal zones and river valleys, resulting in severe losses of 90 to 99 percent of these habitats in much of the region (USFWS 2009a). In eastern North America over the last 60 years, open habitats (grasslands, savanna, barrens, and shrublands) have declined by 98 percent, with shrubland communities comprising 24 percent of this decline (Tefft 2006).

Some types of shrubland habitat are generally stable and can be found in areas that experience water stress, such as scrub-shrub wetlands, salt-stressed coastal thickets, or drought-tolerant pitch pine-scrub oak barrens. In many areas of New England, shrubland habitats are comprised of young forests that represent an intermediate seral stage between old field and mature forest. These shrublands are normally created when fields or grasslands are allowed to grow into shrubland, or when openings are created in the forest canopy thus temporarily reverting the patch to an earlier seral stage. As these patches mature, the overstory closes and shrub density declines. Historically, these openings were created by natural disturbances, such as those created by fire, wind, beaver impacts, or insect outbreaks. However, reduced natural disturbances (e.g., via fire suppression) have greatly limited the creation of new shrubland habitat on the landscape. Furthermore, both stable and disturbance-generated shrubland communities have been converted to other land uses and remaining patches are highly fragmented, particularly in coastal areas of New England.

While the Northeast landscape has typically been dominated by forested lands, a variety of early successional habitats have always been present on this landscape in varying amounts and geographic distributions. Despite recent timber harvests to create more of this habitat, at this point in time, the amount of shrubland and young forest habitats is still insufficient to sustain the high priority wildlife species that depend on them. Many landscape plans call for a goal of 10 to 20 percent of the landscape to be in early successional habitats; while the actual percentage varies from location to location, these habitats currently occupy as low as 2 percent in some areas. Severe habitat loss and fragmentation has reduced the majority of early successional habitat to very small patches of coastal scrub or to managed areas such as utility corridors and recent timber harvests that are insufficient in supporting many shrubland-dependent species, especially the NEC. The U.S. Forest Service's Forest Inventory and Analysis Program (U.S. Department of Agriculture 2014) has continued to show a declining trend for the presence of young forest, age 0 to 20 years, across the New England states. The overall percentage of land in that forest age class over a 5-year period went from 4.53 percent in 2009 to 3.55 percent in 2014. Trends for individual states vary somewhat, but are similar for the same period of time: Maine went from 8.89 percent in 2009 to 5.58 percent in 2014; New Hampshire from 6.48 percent to 5.94 percent; Massachusetts from 2.01 percent to 1.77 percent; Rhode Island from 2.28

## **Purpose of this Proposal**

percent to 1.71 percent; Connecticut from 2.89 percent to 2.85 percent; and New York from 6.69 percent to 4.77 percent.

We received approval in 2012 for a Preliminary Project Proposal (PPP) that would protect up to 15,000 acres in the Northeast. This final LPP/EA describes our proposal in more detail and provides the opportunity to gather input from the public and our partners.

By working closely with partners in conservation delivery and on-the-ground management, we propose to strategically acquire and improve habitat to help achieve overlapping habitat and population goals for declining shrubland wildlife species. It is envisioned that the proposed refuge would contribute towards achieving the following:

- Population goals for declining high priority migratory bird species dependent upon shrublands.
- Habitat and population goals identified in the rangewide NEC Conservation Strategy.
- Recovery goals for several federally threatened or endangered species that have overlapping shrubland habitat needs.
- Population goals for numerous shrubland-dependent SGCN.

Based on the above proposed purposes, Great Thicket NWR could be established under the following statutory authorities:

- Endangered Species Act of 1973 (16 U.S.C. 1534), as amended
- Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j), as amended

We are proposing limited expanded acquisition authority to allow the Refuge System to assist with conservation and management of additional shrubland in key locations. If approved by the Service's Director, this proposal would authorize the Refuge System to work with willing sellers to help conserve approximately 15,000 acres of additional land across six states to contribute to the collective partnership goals listed above.

Early successional habitat is one of the rarest habitats in this region, yet it remains a crucially important resource for numerous wildlife species. Although we are working with several public and private stakeholders, conservation by these partners alone will not be sufficient. Lack of available resources and management capability, as well as economic and public use pressures will greatly limit the protection and maintenance of shrublands on private and state lands into the future. These limitations may hinder our collective ability to implement conservation of a system of shrubland habitats sufficient to meet habitat and population goals for joint wildlife priorities. In many cases, this habitat requires maintenance or rotational management, and the long-term commitment of ownership and permanent easements is key. Service acquisition will greatly facilitate achievement of these goals by ensuring long-term management authority for high value core habitats where substantial populations of shrubland wildlife can be maintained into perpetuity. Although some tracts on many of our Northeast refuges are already being managed for early successional habitat, additional acreage is needed to meet recognized population and habitat goals.

One of the intended benefits of refuge acquisition is the greater long-term certainty of habitat maintenance that comes with permanent easements and fee acquisition, as compared to shorter-term private land enrollments. For



some focus areas in the NEC Conservation Strategy, the amount of secured land is not adequate to host enough management to accomplish the strategy's stated population and habitat goals. In addition to management proposed for secured lands, the strategy identified the need for an additional 15,000 acres of shrubland habitat on currently unsecured lands to meet agreed-upon habitat and population goals.

The scope of this final LPP/EA is limited to the proposed acquisition, in fee-title and in less-than-fee-title, of lands for the establishment of Great Thicket NWR. For the purposes of this final LPP/EA, the landscape analysis area, referred to throughout this document as the Area of Interest (AOI), is the area within which the environmental analysis is conducted. This area encompasses a large portion of the Northeastern United States (see Map 2). This final LPP/EA is not intended to cover the development and/or implementation of detailed, specific programs for the administration and management of those lands. A conceptual management plan (Appendix A) is included to provide general outlines on how the proposed lands would be managed. The appendices are provided as general information for the public in its review of this final LPP/EA. If the proposed refuge is established and the needed lands or interests in lands are acquired, the Service would develop a CCP and needed step-down management plans (e.g., habitat management plan, public use plan, etc.). These plans would be developed and reviewed in accordance with Department of the Interior (DOI) requirements of the National Environmental Policy Act (NEPA).

### Refuge Acquisition Focus Areas

This final LPP/EA identifies a combined target acreage of 15,000 acres to be distributed over time across 10 Refuge Acquisition Focus Areas (RAFAs) encompassing a 257,639-acre project area. Map 2 shows the AOI containing the following 10 RAFAs: Cape Elizabeth-Scarborough, Berwick-York, Rollinsford, Oyster-Dover-Bellamy, Merrimack Valley North, Plymouth, Mashpee, Rhode Island East-West, Pachaug-Ledyard, and Northern Housatonic. Chapter 3 contains maps of each individual RAFA.

We worked with our state and other conservation partners to delineate the RAFAs in key locations within the larger partnership project area. Within each RAFA we identify a floating "target acreage" for Service acquisition, based on estimates in the NEC Conservation Strategy of the need for additional management beyond current capacity on existing agency-secured lands. Opportunities for refuge fee and easement acquisition will be evaluated and guided over time through the use of a pre-determined set of criteria. This approach will allow a Refuge System contribution with the ability to complement partnership activities, given the project's large landscape scale and the need for maximum flexibility for land protection.

*Pine trees with dense shrub understory in southern Maine*

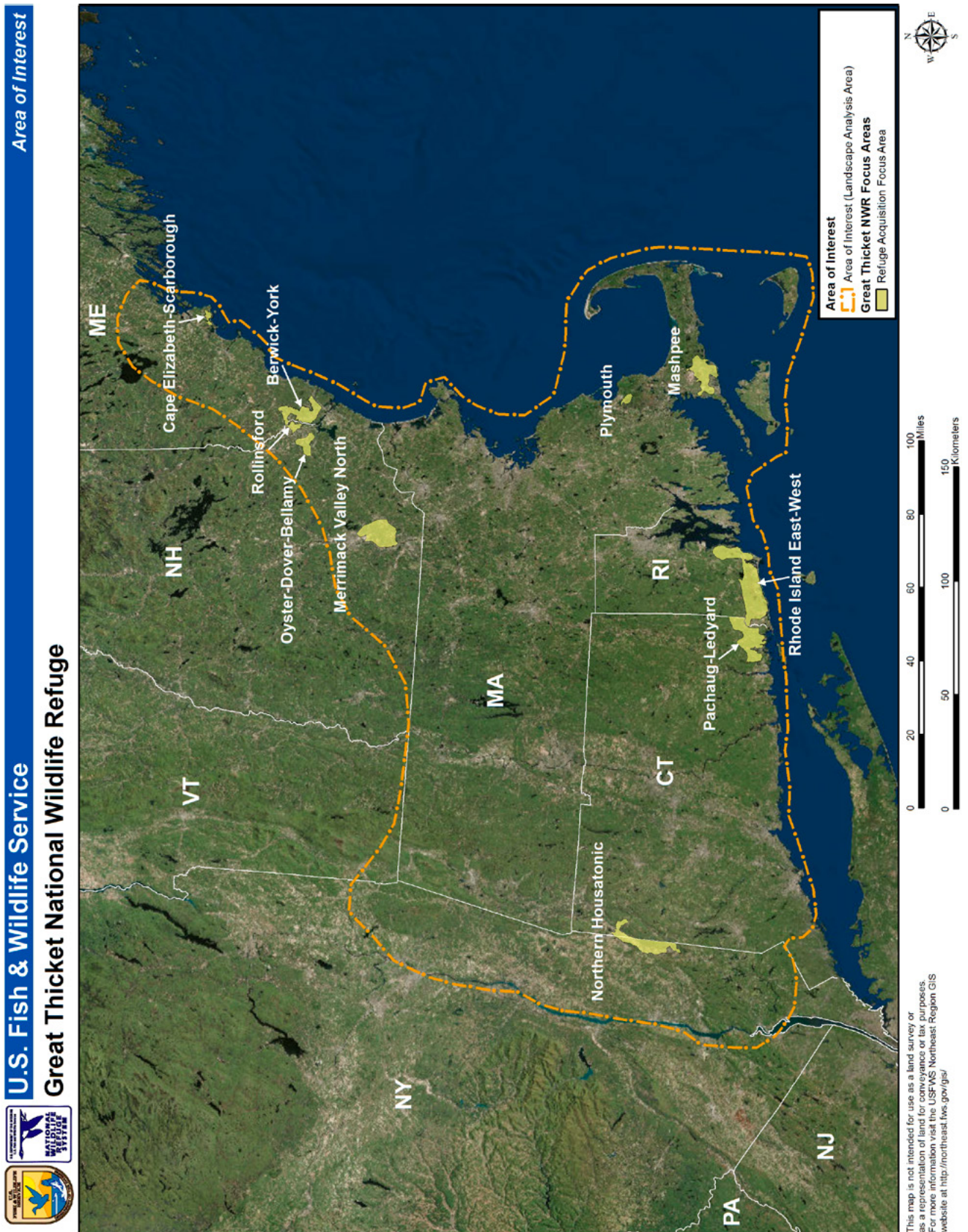


Bill Zimm/USFWS

Land and easement acquisition is not intended to be the primary means of land conservation within the partnership area; rather, refuge acquisition will be an additional tool used in combination with other partners and landowner efforts. It is proposed as an additional tool to be used where it can assist the states, NRCS, the Service's Partners for Fish and Wildlife Program and Coastal Program, and other partner efforts with securement of key parcels, increasing the certainty of shrubland management over the long term. In some cases acquisition funding will not be required, such as in the Mashpee NWR area, where partners are willing to donate land or easements and enter into management agreements with the Service. In other cases, the Service may lease tracts of land to achieve habitat management and protection, as it has done at the Rhode Island NWR Complex.



Map 2: Area of Interest



**Special Considerations**

This final LPP/EA closely aligns with the conservation priorities of the Service's partners. Shrubland habitat, declining shrub-dependent migratory birds, and NEC are all high priorities for the NALCC, NRCS, and the six states contributing to this initiative. The establishment of the proposed Great Thicket NWR would complement the commitments made by states and other partners to recover early successional habitats and create a network of protected shrublands, for a wide suite of species in need. This final LPP/EA was prepared in cooperation with state shrubland teams, Refuge System staffs, the NEC Technical and Executive Committees, Service and state migratory bird biologists, endangered species biologists, and cooperating partners such as WMI.

The project demonstrates strong interagency and partner coordination and collaboration for landscape-scale conservation, and successfully implements the principles of SHC, LCD, use of surrogate species, and embraces science developed and facilitated through the NALCC. The Service is working closely with many partners, including extensive internal cross-programmatic coordination and external agency and non-governmental involvement. Service programs providing direct support and involvement include the following:

- Ecological Services-Endangered and Threatened Species
- Ecological Services-Private Lands/Partners for Fish and Wildlife
- Ecological Services-Coastal Program
- Migratory Bird Program
- Science Applications Program
- Wildlife and Sport Fish Restoration Program

Primary partners include all six state fish and wildlife agencies and additional entities:

- Maine Department of Inland Fisheries and Wildlife (MDIFW)
- New Hampshire Fish and Game Department (NHFG)
- Massachusetts Division of Fisheries and Wildlife (MDFW)
- Rhode Island Department of Environmental Management (RIDEM)
- Connecticut Department of Energy and Environmental Protection (CT DEEP)
- New York Department of Environmental Conservation (NYDEC)
- U.S. Department of Agriculture (USDA)-NRCS
- WMI
- University of Rhode Island
- University of New Hampshire
- Roger Williams Park Zoo
- Queens Zoo

In addition to our partners committing resources to managing public lands within the focus areas for early successional habitat, our Partners for Fish and Wildlife Program and several other entities are also working with numerous private landowners to manage early successional habitat, thus increasing the availability and proximity of shrubland habitat on the landscape. Securing additional refuge lands for early successional habitat is needed to help improve connectivity and management capability.

There are military installations within the project area, and the Department of Defense is also an active conservation partner. The Massachusetts Military Reservation, for example, has developed an approved Integrated Natural Resource Management Plan that identifies several tasks directed at pine barren and NEC conservation. Several Native American tribes are also located within the project area, and some, like the Narragansett Tribe in Rhode Island and the Mashpee Wampanoag Tribe of Massachusetts, are actively planning and implementing shrubland and NEC conservation actions.

